

XVIII. *Note on Samara læta, Linn. By G. A. WALKER-ARNOTT, Esq., LL.D.,  
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Read March 16th, 1847.

PERHAPS few plants described by Linnæus from specimens actually in his herbarium have remained so long doubtful as the one on which I am about to make the following observations.

The genus *Samara* was instituted in 1771 by Linnæus in the 'Mantissa Plantarum': and he unfortunately associated with it, as a synonym to his only species (the *S. læta*), the No. 469 of the 'Flora Zeylanica,' of which no specimen existed in Hermann's herbarium, but which was referred to the *Cornus Zeylanica sylvestris altera* of Burmann's 'Thesaurus Zeylanicus,' tab. 31. It is not easy to explain what could have induced Linnæus to quote this figure, as it bears no resemblance to the plant he himself possessed. Some foreign botanists, deceived by this reference to Burmann, appear to have supposed that Linnæus had no specimen of what he described, and that Burmann's figure must be held conclusive on the point. Accordingly we find M. de Jussieu in his 'Genera Plantarum,' p. 379, placing the genus among his *Rhamnii*, quoting the Linnean generic character and description, but pointing out a discrepancy between the position of the leaves as indicated by Linnæus, and that of those figured by Burmann.

To the synonym of Burmann, Poiret in the 'Encyclopédie Méthodique,' vi. p. 485, adds that of *Samara læta* of Swartz's 'Prodromus,' p. 151; and he gives a detailed description, partly derived from the Linnean description, partly from Burmann's. DeCandolle in the second volume of the 'Prodromus,' while describing the genera and species of *Rhamneæ*, omits *Samara*, and does not even allude to it among the genera formerly referred to the order. In the 'Linnean Transactions,' xvii. p. 137, however, his son says, "*Samara*, Linn. non Sw., *Cornus Zeylanica*, Burm. ! Zeyl. tab. 76, ad *Rhamneæ*

referenda cum celeb. Jussieu :” and this is repeated in the ‘Annales des Sciences Naturelles,’ (n. s.) ii. p. 301, where the quotation of *tab. 76*, instead of *page 76. tab. 31*, has given occasion to a rather unmerited criticism in Meisner’s ‘Plantarum Vasculosarum Genera,’ ii. p. 51. In the 8th volume of the ‘Prodromus,’ at p. 76, this is corrected: here he says, “*Samara*, Linn. non Sw., est *Cornus Zeylanica*, Burm.! Zeyl. p. 76. tab. 31, quæ *Rhamnea*, ut dixit cel. Jussieu;” and from the mark after Burmann’s name in these three places, M. Alph. DeCandolle seems to have himself seen and examined Burmann’s specimens. But, what is not a little remarkable, a few pages further on (p. 103) he says, when describing *Samara læta*, Sw., “*S. læta*, Linn. Mant. p. 199, est *Memecylon umbellatum* (fide Guillemin in litt.) ex Indiâ Orientali,” Guillemin’s allusion being obviously also to Burmann’s specimen, now in M. DeLessert’s herbarium, of which he was Curator. That M. Guillemin is correct in referring Burmann’s plant to *Memecylon*, an attentive comparison of the figure with specimens will convince almost any one, although by some unaccountable mistake only *four* stamens, instead of eight, are described and figured by Burmann: indeed, if the figure were to be trusted to implicitly as to the number of stamens, we must also confide in its accuracy as to their position, and then allow that they are alternate with, *not opposite* to the petals; this latter portion of the usual generic character of *Samara* being derived from Linnæus’s description alone. In no respect, then, ought Burmann’s plant to be associated with either *Rhamnææ* or *Myrsinææ*, from which, too, the opposite leaves separate it.

The first, so far as I am aware, who suspected that there was an error in Burmann’s figure was Lamarck (Encycl. Méth. iv. p. 88), who quotes it with doubt under his *Memecylon ramiflorum*, and says: “Je ne douterois presque pas que cette espèce n’appartient à la figure citée de Burmann (figure que Linné rapporte à son *Samara læta*, bien qu’elle offre des feuilles opposées, le *Samara* les ayant alternes), si Burmann n’attribuoit aux fleurs seulement quatre étamines. En effet la forme des feuilles et la disposition des fleurs de la plante que je vais décrire y sont rendues avec assez d’exactitude pour qu’il ne soit pas facile de l’y méconnoître.” This assertion is however in some measure neutralized by the descriptions attached to the ‘Illustration des genres,’ where he quotes Burmann’s figure for the *Samara læta*, and copies it also, in *tab. 74*,

as the typical representation of the Linnean genus, even although the stamens, after Burmann, are exhibited alternate with the petals, not opposite to them as in the description (i. p. 303). In the 'Prodromus Floræ Peninsulæ Indiæ Orientalis,' i. p. 319, Dr. Wight and I, in 1834, referred Burmann's plant to *M. ramiflorum*, Lam., or *M. umbellatum*, Gærtn., without any hesitation, and stated that "Burmann in his figures of this *and of M. capitellatum* has only noticed four stamens, thereby leading Linnæus and others to refer tab. 31 to the very different *Samara læta*," Burmann's equally faulty figure and description of *M. capitellatum* having been overlooked, while it was made of importance in *M. ramiflorum*. At that time I had not analysed the true *S. læta*, and therefore was obliged to leave it in uncertainty, although from a pen-and-ink sketch, traced for me by Dr. Wight from the Linnean specimen, I had little doubt in my own mind that it would prove a Myrsineous plant, and closely allied to *Choripetalum*, if not of the same genus. Dr. Lindley in his second edition of the 'Introduction to the Natural System,' p. 225, refers it to *Myrsinææ*, and almost next to *Choripetalum*: but I do not now remember if, amongst a few memoranda I sent him for that edition, I gave him my views of the position of the genus, and induced him to place it in an order from which he has since removed it. Meisner in his 'Plantarum Vasculosarum Genera,' ii. p. 51, adopts Dr. Wight's and my conclusions as to Burmann's plant, but refers "*Samara*, Linn. (non Sw.)" to *Rhamnææ*, "Genus non satis notum, sed verosimiliter *Rhamnaceum* genuinum." Endlicher in his 'Genera Plantarum,' p. 1104, places *Samara* of Linnæus among the "*Genera Rhamneis affinia*," and excludes the synonym of Burmann; but whilst he does so, he most unaccountably adds, "*arbuscula Zeylanica*," which applies solely to Burmann's plant, Linnæus nowhere saying that his was obtained from Ceylon. Lastly, following these, Dr. Lindley in his 'Vegetable Kingdom' refers the Linnean plant also to *Rhamnææ*, but with a mark of doubt.

Whilst making some observations on the *Corollifloræ* in the 'Annales du Muséum,' xv. pp. 351 and 353; Jussieu states that he had previously referred *Samara* to the *Rhamnææ* "*à cause de sa corolle indiquée comme polypétale*;" and he now compares it with *Myrsine*. He supposes however *Myrsine* to have a 5-celled and 5-ovuled ovary, while the *Ardisiaceæ*, its allies, had an unilocular ovary: on which account he proposes to place *Myrsine* either at

the end of the *Sapoteæ* or beginning of *Ardisiaceæ*. “On désire” (he adds) “de nouvelles observations sur le *Manglilla*, le *Rapanea*, le *Samara* et l'*Atruphyllum*, pour savoir si la disposition des fleurs en faisceaux les rapproche plus de *Myrsine*, ou si le fruit monosperme les lie davantage à l'*Ardisia*. Ils paroissent, au moins, devoir occuper la place intermédiaire.” This passage, containing Jussieu’s later and more matured opinion on the position of *Samara*, is the more important, because *Myrsine* itself has a one-celled ovary, and therefore the only reason for not placing it in the *Ardisiaceæ* was disposed of. Jussieu may therefore be said, in 1810, to have virtually referred *Samara* to his *Ardisiaceæ*, now usually called *Myrsineæ*; but this indication appears to have been overlooked, most botanists in modern times adverting only to the early opinion expressed in 1789 in his ‘*Genera Plantarum*.’

In 1788, Swartz published his ‘*Nova Genera et Species Plantarum, seu Prodromus*,’ and among the *addenda et corrigenda* to that volume, he gives a specific character of *S. læta*, Linn., in order to distinguish it from his own *S. coriacea*. That Swartz did not consider *S. læta* to be a West Indian plant is obvious from his inserting observations in the same place on *Cynomorium coccineum* and *Diodia virginica*. These *addenda et corrigenda* were probably written after he had seen the *S. læta*, Linn., or a specimen so called; but the specific character he has given might have been equally well drawn up from Linnæus’s description. In the first volume of the ‘*Flora Indiæ Occidentalis*,’ published in 1797, he also mentions this plant, but not as a native of the West Indies or belonging to his Flora: he merely says of it, when speaking of *S. coriacea*, “Distinguitur a *Samara læta*, L., cui folia minora tenuiora obtusa, flores conferti nec glomerati sed umbellati, pedicellis sesquilinearibus, corollæ coloratiores.” Now here are some particulars which he could scarcely have gleaned from any portion of the Linnean description; and which lead to the conclusion that, at least before 1797, he had access personally to a specimen so named, and which he supposed to be the Linnean plant.

Three things must therefore be kept in view as to the species noticed by Swartz: 1st, he nowhere says that it is a native of the West Indies or of America; 2ndly, he merely introduces it to enable other botanists to understand better the difference between it and his own *S. coriacea*; 3rdly, the *S. læta* of which he speaks, he intends to be that of Linnæus. These positions

are the more necessary to be recollected, because M. Alphonse DeCandolle in the 'Prodromus,' viii. p. 103, assumes it as a fact, that the Swartzian plant was from America, and therefore that it must be different from the Linnean one obtained from the East.

Where Swartz saw the plant which he considered the *S. læta* of Linnæus is fortunately a point not very difficult to be conjectured. In the short sketch of the Life of Swartz published in Hooker's 'Botanical Journal,' ii. p. 384, it is stated: "At length, in 1786, he returned to Kingston in Jamaica, where, out of attachment to his native land, he declined the honour that was offered to him of being appointed Botanist to His Britannic Majesty, and embarked for England on his way to Sweden. He remained for some time in London, profiting by the opportunity thus afforded him for examining the vast treasures in the Banksian herbarium, and comparing the plants that he had himself brought home with this and other collections, and then in 1789 he returned to his own country." I am however informed by Mr. Bennett, that "there is a letter from him to Sir Joseph Banks, dated Orfordness, 23rd July, 1787, when he was just on the point of soon losing sight of England; and another from Norrköping in Sweden, dated 29th August, 1787." As the title-page of the 'Prodromus' bears date 1788, it may be inferred that this work was printed immediately after his return to Sweden, and that the manuscript had been drawn up in the West Indies. Moreover, there is another letter from him to Sir Joseph Banks, written from Jamaica on 1st March, 1786, so that it must have been between the summers of 1786 and 1787\* that Swartz examined the Banksian collections, and there made the observations on *S. læta*, which he afterwards inserted in his 'Flora Indiæ Occidentalis.' How far the plant so called, which is preserved in the Banksian herbarium, differs from the Linnean specimen, I shall notice presently. The marks given by Swartz in the 'Flora Indiæ Occidentalis' for distinguishing it from *S. coriacea*, are strictly applicable to the specimens in the Banksian collection:

\* Abundance of documents no doubt exist in London to prove the exact period during which Swartz was so engaged, as also when the 'Prodromus' was written, and the *addenda and corrigenda* made. I am unwilling to refer to memoranda of my own, or to hearsay evidence; the above is sufficient to establish that Swartz must have seen the *S. læta* of the Banksian herbarium before he published the 'Flora Indiæ Occidentalis.'

they apply also to the Linnean specimens, then in England; but it is not probable that Swartz examined the latter, otherwise he must have taken notice of one of the flowers having stamens longer than the corolla.

In 1810, Mr. Brown in the 'Prodromus Floræ Novæ Hollandiæ,' p. 533, refers the *Samara coriacea* of Swartz to *Myrsine* along with the *S. floribunda*, Willd., and *S. pentandra*, Hort. Kew.; but although specimens of *S. læta* were in the Banksian herbarium, there is no indication there, or in any other of his valuable writings, so far as I can discover, what were the opinions he entertained of the species in question, or of *Samara* itself as a genus.

That it ought not to be compared with the *Rhamnæ*, at least as now restricted, must be obvious to any one who attends to the description of the *small* quadripartite calyx, which is minute in comparison of the corolla, while in the *Rhamnæ* the calyx is large, and the petals either wanting, or of so anomalous a shape that they scarcely merit the name. On the other hand, if we compare the Linnean character with *Myrsine*, the principal difference lies in *Samara* being said to have four distinct petals, *Myrsine* usually five and united at the base into a gamopetalous corolla. It was these considerations which principally induced me in 1833, whilst disposing of Burmann's 'Thesaurus Zeylanicus,' tab. 31, to suspect that *Samara* might be the same as the genus now called *Choripetalum* by M. Alph. DeCandolle. At the same time, as other species referred to *Samara* had been ascertained to have a gamopetalous corolla, an examination of the Linnean specimen was necessary.

This I was not able to accomplish before 1845, when I had an opportunity of seeing the specimen in both the Banksian and Linnean herbaria, and was permitted to analyse a flower of each. And here I may mention, that the specimens I have seen are six in all; three in the Linnean, and three in the Banksian herbarium. In no other collection have I yet met with any similar plant, or one liable to be mistaken for them. The three in the Banksian herbarium are all from China. No. 1 from H. Bradley, 1779; No. 2 from Macao, David Nelson, 1780; and No. 3 from Sir G. Staunton: probably all are from Macao or the neighbourhood of Canton. These agree in every respect with each other: all have perfect stamens not longer than the corolla, and a sterile ovary without a style. Of the three preserved in the Linnean herbarium, two have a fertile ovarium and style, and no station attached to them: one

fastened on a separate sheet of paper has the following manuscript generic character written by Linnæus on the back of the sheet:—"Calyx 4-partitus, ovatus, acutus, parvus. Cor. Petala 4, ovalia, patentia, basi lacuna. Stam. Filamenta 4, subulata, *brevissima*; lacuna corollæ laciniis fossula singulis impressa. Antheræ subcordatæ, corolla duplo breviores. Pistill. Germen ovatum, longitudine  $\frac{1}{2}$  calycis, desinens in cylindrum calyce ferè longiorem. Stigma obtusum, infundibuliforme. Bacca 1-ocularis, monosperma." Now, as far as regards the short stamens, and almost everything except the fruit, which is not present, this description applies to the specimen in question, as also to the other glued to the second sheet of paper. The anthers however appear solid and without pollen. With regard to the fruit, there is nothing which could be so called on either specimen; the ovary is considerably advanced, and in this state is not different from what is found in *Myrsine*: there are two ovules imbedded in the upper half of a large, globose, central, free placenta: I have no doubt that Linnæus described this central placenta for the seed.

Now in almost every published description of this genus the filaments are said to be "elongata," and the fruit a "drupa." Even Sir J. Smith, in Rees's 'Cyclopædia,' although the generic character he there gives be in other respects almost a literal translation of the above in the Linnean herbarium, says, "Filaments 4, awl-shaped, *long*," and "Drupe roundish. Seed solitary." This difference in the mode of describing the stamens is remarkable, and might lead one to suspect that if the manuscript description were correct, the published one might have been derived from the figure in Burmann's 'Thesaurus Zeylanicus,' tab. 31: and perhaps the supposition that the two were the same species might have influenced Linnæus to think that the stamens he had previously described in manuscript had been injured, for the third specimen in the Linnean herbarium presents amongst several unexpanded flowers one, and but one, with the stamens protruded and nearly twice as long as the corolla. This specimen has the word "India" written under it.

The whole six specimens agree in habit, in foliage, and nearly so in the inflorescence and calyx. They differ in some respects in the corolla and stamens. The Banksian (male) specimens approach more in the corolla and stamens to the female plants in the Linnean herbarium, than to these parts in the

Linnean sterile one. In the Banksian plants the petals are of a thicker texture than in either of the others, particularly their lower half towards the margins, as if the margin had been inflexed and become adnate to the inner surface of the petal: there is also a conspicuous canal behind the filament, and to which the latter is applied: the petals are of a much darker colour than in the Linnean sterile one, and agree better in that respect with the Linnean fertile ones. The dots or glands on the petals are oblong and very obscure; in all the three Linnean specimens these are round, and in the sterile plant are very conspicuous. In the Linnean fertile plant the petals exhibit a small lobe at the base folded up against the face of the petal, and more or less agglutinated with it, although occasionally I find it free: the space between these lobes forms the "fossula" of Linnæus. In the sterile specimen there was a similar structure.

A question now arises whether there be one, two, or even three distinct species. They all agree, as I have said, in several particulars; on the other hand, the bark of the fertile specimen exhibits numerous small, prominent, but conspicuous tubercles or lenticellæ, which are either wanting or much less conspicuous on the Linnean sterile one: I am inclined however to consider this difference as connected with the portions of the shrub from which the specimens have been taken, as I find similar differences on specimens of what I consider to be *Choripetalum aurantiacum*, Alph. DeCandolle. The principal distinctions lie between the sterile plants, those in the Banksian herbarium having short but perfect stamens, while in the Linnean one the stamens are elongated; and as the three in the Banksian collection agree with each other, although collected by different individuals and at different times, I can scarcely attribute the shortness of the filaments to the flowers not being sufficiently developed, although I consider that is the reason for only one flower on the Linnean specimen having long stamens. As to there being *three* species confused, I see no reason for such an hypothesis, the differences between the Banksian specimens and the Linnean fertile ones being scarcely greater than might be expected in flowers of different sexes. The principal difficulty lies in the Linnean sterile specimen; but, on the other hand, it agrees better, in the petals having their inflected portion confined to the base, with the fertile plants, than with the Banksian specimens.



In Carcy's edition of Roxburgh's 'Flora Indica,' vol. ii. pp. 299 and 300, Dr. Wallich has described two plants, for which Alph. DeCandolle has since constituted the genus *Choripetalum*. Of the one, *Ch. undulatum*, the female only is known, and the analysis accords well with that of the female of *Samara læta*: we find the same short stamens, thickish style and stigma in both. Of the second, *Ch. aurantiacum*, Dr. Wallich only knew the male, in which the stamens were twice the length of the petals, and the ovary rudimentary without any style: but in his 'List,' No. 2299, he associates with it a specimen from Dr. Wight in fruit; and, as a corresponding one from Dr. Wight is before me, I am enabled to refer to Dr. Wallich's, and consequently to M. Alph. DeCandolle's plant with considerable certainty, although there were no specimens of either among the valuable collections I received from Dr. Wallich. Since Dr. Wight's return to India, he has met with the same at Quilon, and I believe there only; and among the specimens transmitted to me are three forms, all agreeing in habit, inflorescence and foliage, sent without any hesitation as one species. One of these shows the stamens exerted, and accords well with Dr. Wallich's description; a second has the flowers expanded, but the petals shorter, and the stamens about the length of the corolla; the third is in immature fruit. The differences are certainly not less than in the three forms of the *Samara læta* alluded to. It may be said, that the second form with expanded flowers and short stamens might, when further developed, have exhibited the stamens elongated, but in their present state they are more developed than in the Banksian specimens of the *S. læta*; and if we allow that the stamens would have been elongated when fully developed in the one case, we may in the other. I cannot satisfy myself however that such is the cause in either case; but I refer to this parallel instance to bear on the point, that there seems no reason for supposing that the six specimens of *S. læta* differ specifically\*. In 1833, while examining the genus *Hedyotis*, I was much struck with the great length of the filaments on some specimens and their shortness on others of what I could not otherwise believe to be distinct species: in these the style was usually in an inverse proportion, but in both states was fertile. I am by no means certain if the structure in *Samara* or *Choripetalum* ought to be considered analogous.

\* I have no doubt that the inconstancy in the length of the stamens applies to *Myrsine*; and therefore that some of the sections proposed by M. Alph. DeCandolle are of no value.

I shall now add the analysis I have made of the *Samara*, keeping distinct, when necessary, the three forms spoken of.

Flores abortu dioici. Calyx minutus, paullò ultra medium quandoque ferè ad basin quadrifidus, segmentis latè triangularibus, acutis vel obtusiusculis, ciliolatis, æstivatione remotiusculis. MASC. Corolla calyce quadruplò longior. Petala quatuor, imò calyci inserta, sessilia, separatim cadentia, ovato-oblonga, obtusa, ciliolata, æstivatione imbricata petalis duobus exterioribus duobus interioribus (*in exempl. Banks.*: fusca lineolis crassis brevibus atro-fuscis obscuris punctata, dorso sublævia, infernè versus marginem quasi introflexum et ad basin crassiuscula, medio intùs supra staminis insertionem subcanaliculata, apice plana tenuiora; *in exempl. Linn.*: viridi-brunnea, glandulis rotundis crebris conspicuè notata et dorso subasperata, ad basin intùs utrinque incrassata, sursum concava, vix ac ne vix canaliculata, apice tenuiora). Stamina quatuor, petalis opposita et paullò supra basin inserta (*in exempl. Banks.*: corollâ sub-breviora, filamentis latè subulatis ad petalorum canaliculum applicita; *in exempl. Linn.*: in alabastro corollâ dimidio breviora filamentis brevissimis, in flore explanato filamentis filiformibus corollam ferè duplò superantibus). Antheræ medio dorso affixæ, connectivo latiusculo, erectæ, introrsæ, glandulâ apicali destitutæ, biloculares, loculis longitudinaliter e basi versus apicem dehiscentibus (*in exempl. Banks.*: subrotundæ, basi apice subemarginatæ, filamentis vix breviores; *in exempl. Linn.*, saltem in alabastro\*, cordatæ). Pollen minimum, ellipsoideum, læve. Pistillum imperfectum, liberum, minutum, calyce brevius, ovato-conicum, fuscum. FÆM. Corolla quam in masc. major, calyce 4-5-plò longior. Petala quatuor, imò calyci inserta, sessilia, ovalia, obtusa, margine copiosè ciliolata, brunnea, ad basin lobulo inflexo intùs adnato utrinque incrassata, concava at medio supra staminis insertionem haud canaliculata, supernè tenuiora, glandulis rotundis conspicuis aurantiacis punctata et dorso subasperata, æstivatione ut in masc. Stamina quatuor, petalis opposita et paullò suprâ inserta, ac iisdem subdimidio breviora. Filamenta subulata at brevissima. Antheræ cordatæ, majusculæ, subceræ, polline nullo. Ovarium liberum, 1-loculare, receptaculo magno globoso libero centrali sessili, ovatum, apice in stylum conicum corollâ brevius (*in exempl. suppet. flexuosum*) angustatum. Stigma dilatatum, medio depressum, margine obscurè fimbriato-lacerum. Ovula pauca, duo (an semper?), receptaculo supra medium immersa, lentiformia.

Frutices. *Rami cinerei*, in exempl. Linn. masc. *sublæves*, in fœm. *lenticellis crebris notati*.

*Folia alterna, oblonga, integerrima, obtusa, basi paullò angustata, pallida, subtùs tamen pallidiora, glaberrima, tenuia ac minimè coriacea, lineolis fuscis crebris punctisque qui-*

\* There being, as already said, but one flower with exerted stamens, I could not soften it in water so as to ascertain the true form of the anthers; but there is no reason to suppose that they afterwards differ from what I observed in the bud.

*busdam rotundis (post in aquâ macerationem conspicuè) notata, 1-2-uncialia, 2 $\frac{1}{2}$ -2 $\frac{3}{4}$ -plò longiora quam lata. Petiolus sub-bilinearis. Flores 5-7 in corymbulum vel racemum brevem axillarem pedunculatum, folio 3-4-plò breviorum digesti. Pedicelli sublineares, bracteolâ dimidio breviorè oblongo-lanceolatâ glandulis notatâ margine hinc inde ciliolatâ basi instructi, læves vel pilis glanduliferis paucis. Pedunculi 1-2-lineares.*

I should suppose, then, that no doubt can now exist as to the proper place for *Samara*, and also that *Choripetalum* of M. Alph. DeCandolle must be considered a synonym. The only difference is in the inflorescence: in *Samara læta* we find the raceme contracted into a kind of little corymb; in *Choripetalum* the raceme is elongated. In *Choripetalum undulatum* Dr. Wallich finds only two ovules, precisely as in the ovaries of *S. læta* which I examined; but in Wight's fructiferous specimen, correctly, as I think, referred by M. Alph. DeCandolle to *Ch. aurantiacum*, there appear to me indications of a greater number, but I do not yet quite understand the structure of its seed: in that plant, too, the rachis of the spike (for the pedicels are too short to permit it to be called a raceme) becomes woody in the female plant as the fruit ripens, resembling a short branch: its leaves are extremely variable, sometimes oblong, or ovate-lanceolate, and acute, sometimes elliptical and obtuse. The only positive character by which this genus can be separated from *Embelia* lies in the quaternary, not quinary, parts of the flower; perhaps the æstivation may also slightly differ; and it is not improbable that all the species exhibit the stamens elongated in some of the male flowers: but upon these latter points we have as yet no good information. As however I am of opinion that the relative length of the stamens and petals is not of specific importance, I am inclined to distinguish the four species hitherto discovered shortly as follows:—

*S. læta*, floribus corymbosis, bracteis pedicello duplò brevioribus, petalis intùs glabris, foliis membranaceis planis\*.

*S. læta*, L., Sw., &c.

*Hab.* In Chinâ†.

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\* I do not see how *Choripetalum obovatum*, Benth. in Hook. Lond. Journ. of Bot. i. p. 490, differs, but I have not had an opportunity of examining the specimens collected at Hong-Kong by Mr. Hinds: they are obviously the female.—April 3rd, 1847.

† I have no doubt that all the Linnean specimens of *S. læta* were collected in China, and perhaps by Osbeck, and not in India strictly so called.

*S. undulata*, floribus racemosis, bracteis pedicello multò brevioribus, petalis intùs glabris, foliis membranaceis undulatis.

*Myrsine?* *undulata*, Wall. in Roxb. Fl. Ind. i. p. 299.

*Choripetalum undulatum*, A. DeC. in Linn. Trans. xvii. p. 131.

*Hab.* In Nepaliâ.

*S. viridiflora*, floribus racemosis, bracteis pedicello duplò brevioribus, petalis subacutis intùs subvelutinis, foliis subcoriaceis.

*Choripetalum viridiflorum*, A. DeC. Prodr. viii. p. 88.

*Hab.* In Javâ.

*S. aurantiaca*, floribus subspicatum racemosis, bracteis pedicellum florigerum brevem superantibus vel subæquantibus, petalis intùs velutinis, foliis coriaceis.

*Myrsine?* *aurantiaca*, Wall. in Roxb. Fl. Ind. i. p. 300.

*Choripetalum aurantiacum*, A. DeC. in Linn. Trans. xvii. p. 131.

*Hab.* In Penins. Indiæ Orient., ad Quilon.

To the above I may add what appears to be another species, but of which I have received but one specimen, the male plant, with the buds not expanded. This has the petals in æstivation nearly as described in *S. viridiflora*, and slightly convolute: these seem to be white and glabrous on their inner surface, but covered on the back with numerous black, prominent glands. The rachis of the raceme and the pedicels are scabrous from the presence of short rigid hairs, often tipped by a gland. The leaves are oval-lanceolate and on longish petioles. With this a fructiferous specimen in Herb. Wight (apparently selected to correspond with Wall. L., No. 2299 B, when the latter was sent by him to Dr. Wallich) agrees in the pedicels being so long as to form a distinct raceme. Other specimens in my own herbarium, also from Dr. Wight, exhibit the same conspicuous pedicels ( $1\frac{1}{2}$  to 2 lines long), but others have short ones (scarcely half a line long) as in Wall. L., No. 2299 B, in the Indian herbarium of the Society. At that time Dr. Wight probably considered all these fructiferous specimens as one species; and their foliage and general aspect differ in no respect. I incline however to think that there may be two, and that the specimens with longish pedicels, which Dr. Wight has again found at Quilon, ought to be referred to *S. atro-punctata*. Dr. Wallich describes the pedicels of *S. aurantiaca* as being "very short:" and in the Indian herbarium of the Society, Wall. L., No. 2299 A, the pedicels are

short, but obvious. These specimens were raised in the Calcutta Botanic Garden from seeds sent by Dr. Heyne: but in my native specimens from Quilon, also of the male plant, the flowers are almost sessile, so that the bracteoles sometimes reach up to the middle of the calyx. If the length of the pedicels affords no assistance, it will be impossible to say to which species the fructiferous specimens belong: and if moreover the petals of *S. atropunctata* become pubescent on their inner surface as the buds expand, the supposed new species may have to be again reduced. At present I distinguish it as follows:—

*S. atropunctata*, floribus racemosis, bracteolis pedicello florigero duplò longioribus, petalis obtusis intùs glabris, foliis coriaceis.

*Hab.* In Penins. Indiæ Orient., ad Quilon.

